

Work Order ID 74718

Wednesday, October 05, 2011 1:21:25 PM



U/A

Page 1

Item ID: D350-748-141TRN

Accept



Setup Start



Revision ID: ~~UR~~

Stop



Item Name: Crosstube Turning Detail

Start Date: 10/5/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 10/14/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: M.L.J

Date: 11/10/05 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D350-748-141

[EUR] OK of 11.10.06

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs on both ends as per Folio FA648

2-Turn first side as per Folio FA648

3- File transition lines smooth.

FOLIO REV: AA

DWG REV: 1

mm 12/02/09

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

mm 12/02/09

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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NOTE: Date & initial all entries

Work Order ID 74718

Wednesday, October 05, 2011 1:21:25 PM



Page 2

Item ID: D350-748-141TRN

Accept



Setup Start



Revision ID: U/R

Stop



Item Name: Crosstube Turning Detail

Start Date: 10/5/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 10/14/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 120 | | 0.00 | | | | | | | |
| | MORI SEIKI CNC LATHE LARGE | | | | | | | | |
| Mori Seiki | Memo | 0.00 | | | | | | | |
| Mori Seiki CNC Lathe Large | 1-Turn second side as per Folio FA648 2- File transition lines smooth. 3-Scribe Part & Batch as per Dwg D350-748-141 FOLIO REV: <u>MM</u> DWG REV: <u>DP</u> | | | | | | | | |
| 130 | | 0.00 | | | | | | | |
| | QC1- Inspect dimensions to dimension sheet | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 140 | | 0.00 | | | | | | | |
| | QC8- Inspect parts - second check | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |

1 \emptyset
mm-L 12/02/091 \emptyset
mm-L 12/02/09

DP 12-2-13

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Work Order ID 74718

Wednesday, October 05, 2011 1:21:25 PM

Page 4

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Revision ID: U/R
Item Name: Crosstube Turning Detail

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Page 3

Item ID: D350-748-141TRN
Revision ID: U/R
Item Name: Crosstube Turning Detail

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Setup Start

Stop

Start Date: 10/5/2011 Start Qty: 1.00
Required Date: 10/14/2011 Req'd Qty: 1.00

Cust Item ID:
Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 150 Crosstubes Crosstubes | Large Fab Memo Grind machining marks | 0.00 0.00 | | | | 1 | 0 | | |
| 160 Outsource1 Outsource process - Heat Treat | Outsource process - Heat Treat Memo Issue P/O: <u>16600</u> <u>16274</u> Heat Treat to min 180 KSI As per Dwg D350-748-141 (MIL-T-6736 OR AMS 2759-1C) Sand Blast tube after Heat Treat Possible Supplier: Vac Aero Ensure Certificate of Conformity is attached | 0.00 0.00 | | | | | | | |
| 170 Packaging Packaging | Receive & Inspect for Damage & Mat'l Certs Memo Ensure certificate of conformaty is attached | 0.00 0.00 | | | | | | | |

MAY. L

12/02/11

CL 12/03/29 0

P/4/6 C

| W/O: | | WORK ORDER CHANGES | | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector | |
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NOTE: Date & initial all entries

H:\FORMS\Quality Assurance\approved QA\NCRWO RevE

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NOTE: Date & initial all entries

H:\FORMS\Quality Assurance\approved QA\NCRWO RevE

| | |
|---|----------------------------------|
| DART AEROSPACE LTD | Work Order: 74718 |
| Description: Crosstube Assembly (AS350/355 High Fwd) | Part Number: D350-748-141 |
| Inspection Dwg: D350-748-141 Rev: F | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

| Inspection Sheet | Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|------------------|-------------------|---------------|------------------|--------|--------|----------------------|----------|
| SIDE A | 2.240 | +0.005/-0.000 | 2.245 | / | | vern | CWC-08 |
| | 2.180 | +0.005/-0.000 | 2.185 | / | | | |
| | 2.180 | +0.005/-0.000 | 2.183 | / | | | |
| | 2.237 | +0.005/-0.000 | 2.239 | / | | | |
| | 2.272 | +0.005/-0.000 | 2.273 | / | | | |
| | 2.306 | +0.005/-0.000 | 2.308 | / | | | |
| | 2.339 | +0.007/-0.000 | 2.344 | / | | | |
| | 2.339 | +0.007/-0.000 | 2.344 | / | | | |
| | 0.062 | +/-0.010 | 0.062 | / | | vern | CWC-08 |
| | 4.26 | +/-0.030 | 4.26 | / | | | |
| | R0.063 | +/-0.010 | 0.063 | / | | RG | |
| | R0.50 | +/-0.030 | 0.500 | / | | | |
| | | | | | | | |
| | | | | | | | |
| SIDE B | 2.240 | +0.005/-0.000 | 2.245 | / | | vern | CWC-08 |
| | 2.180 | +0.005/-0.000 | 2.185 | / | | | |
| | 2.180 | +0.005/-0.000 | 2.185 | / | | | |
| | 2.237 | +0.005/-0.000 | 2.241 | / | | | |
| | 2.272 | +0.005/-0.000 | 2.276 | / | | | |
| | 2.306 | +0.005/-0.000 | 2.310 | / | | | |
| | 2.339 | +0.007/-0.000 | 2.344 | / | | | |
| | 2.339 | +0.007/-0.000 | 2.344 | / | | | |
| | 0.062 | +/-0.010 | 0.062 | / | | vern | CWC-08 |
| | 4.26 | +/-0.030 | 4.26 | / | | | |
| | R0.063 | +/-0.010 | 0.063 | / | | RG | |
| | R0.50 | +/-0.030 | 0.500 | / | | | |
| | | | | | | | |
| | | | | | | | |
| | 110.27 | +/-0.060 | 110.27 | / | | 74pe mm-L-02 | |

| | | |
|--------------------------|-----------------------|------------------------------|
| Measured by: mm-L | Audited by: DP | Preliminary Approval: |
| Date: 12/02/09 | Date: 12-2-13 | Date: |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|--|------------|----------|
| A | 06.11.09 | New Issue (P/O D350-748-101) | KJ/JLM | |
| B | 07.10.24 | Dwg Rev updated | KJ/EC/DD | |
| C | 11.01.20 | Dwg Rev updated | KJ | |
| D | 11.07.26 | Tolerance revised for 2.339 dimensions | KJ | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| Item | Qty -141 | Part Number | Description |
|------|-------------|---------------|--|
| 1 | X | D350-748-141 | CROSSTUBE ASSEMBLY (AS 350/355 HI FWD) |
| 2 | 1 | D6015-125 | CROSSTUBE (OR D6017-115) |
| 3 | 2 | D3502-1 | SUPPORT |
| 4 | 2 | D2856-400-710 | ABRASION STRIP |
| 5 | 1 | AELS-1032-225 | INSERT |
| 6 | 1 | NAS1149D0363J | WASHER (OR AN960JD10) |
| 7 | 2 | MS21920-20 | CLAMP (PER DART SPEC. M-MS21920-20) |
| 8 | 1 | MS27039-1-10 | SCREW |

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 74718 M.L.J

11/10/05 OK *11.10.06*
UNDER REVIEW
11.02.07

RELEASED
2011-01-18

| | | | |
|------------|---|---|----------|
| F | ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4) | CP | 10.11.23 |
| E | REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-048 (ZN A8-3); TOLERANCES (ZN C8-3, D1-3) | RF | 09.09.30 |
| D | MAG. PARTICLE AND CAD PLATE AS MFD. | CP | 06.10.31 |
| C | ADD CAD PLATING | CP | 06.08.14 |
| B | ADD D6017-115 & PRIME AND PAINT | CP | 06.06.30 |
| A | NEW ISSUE | CP | 06.03.31 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | <i>92</i> | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. REV. F D350-748-141 SHEET 1 OF 4 TITLE SCALE CROSSTUBE (AS 350/355 HI FWD) NTS <small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |
| DRAWN | <i>92</i> | | |
| CHECKED | <i>92</i> | | |
| MFG. APPR. | <i>92</i> | | |
| APPROVED | <i>92</i> | | |
| DE APPR. | <i>92</i> | | |
| DATE | 10.11.23 | | |

| W/O: | | WORK ORDER CHANGES | | | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|--|--|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector | | |
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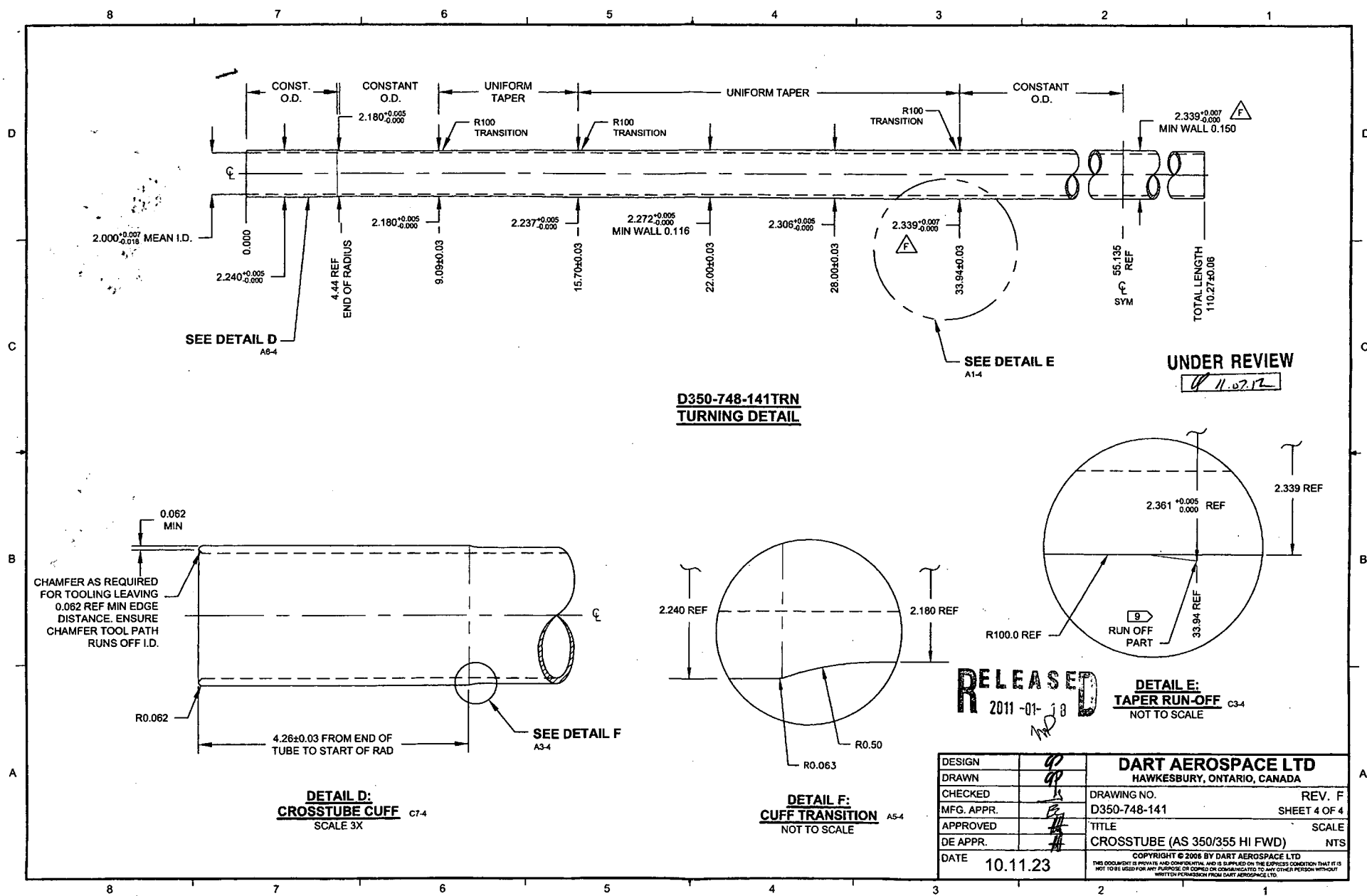
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

74718



**D350-748-141TRN
TURNING DETAIL**

UNDER REVIEW
11.07.12

RELEASED
2011-01-18

| | | | |
|------------|----------|--|--------------|
| DESIGN | 92 | DART AEROSPACE LTD | |
| DRAWN | 92 | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | 13 | DRAWING NO. | REV. F |
| MFG. APPR. | 13 | D350-748-141 | SHEET 4 OF 4 |
| APPROVED | 13 | TITLE | SCALE |
| DE APPR. | 13 | CROSSTUBE (AS 350/355 HI FWD) | NTS |
| DATE | 10.11.23 | <small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMPILED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |

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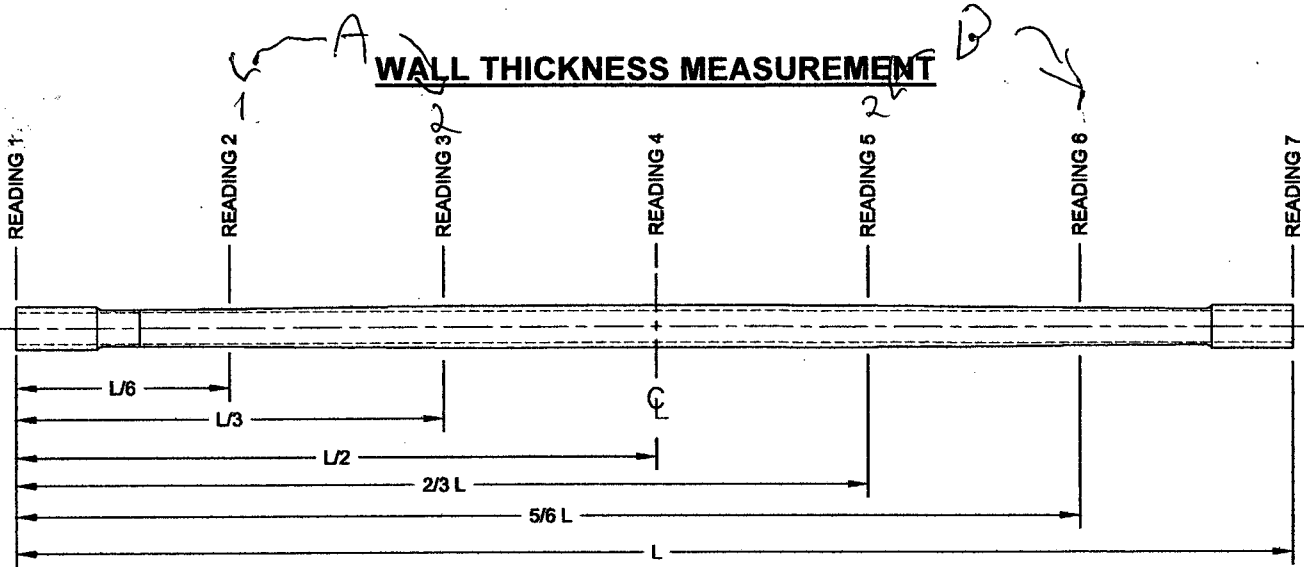
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NOTE: Date & initial all entries

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|-----------------------------|--|---------------------------------|
| DART AEROSPACE LTD | | Work Order: 24718 |
| Description: | | Part Number: 350-7456/41 |
| Inspection Dwg: Rev: | | Page |




| | WALL THICKNESS MEASUREMENT (IN) | | | | DEVIATION (max-min) | TOLERANCE |
|----------------------|---------------------------------|------|------|------|------------------------|-----------|
| | Q1 | Q2 | Q3 | Q4 | | |
| READING 1 L=0" | | | | | | 0.030" |
| READING 2 L=18" A | .121 | .139 | .146 | .140 | | |
| READING 3 L=37" A | .177 | .181 | .188 | .177 | | |
| READING 4 L= | | | | | | |
| READING 5 L=18" B | .149 | .137 | .134 | .132 | | |
| READING 6 L=37" B | .162 | .178 | .180 | .175 | | |
| READING 7 L= | | | | | | |

341.405 10.51

10.51

10.51 10.51 10.51

| W/O: 74718 | | WORK ORDER CHANGES | | | | | |
|------------|------|---|----|------|-----|--|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| 12.03.26 | 151 | DRAW Ø0.188 TOOLING HOLE THRU CUFF, QTY(1) PER CUFF, 2" FROM END. TOOLING HOLES IN EACH CUFF MUST BE PARALLEL TO EACH OTHER. SEE ATTACHED DWG | | | |  12.03.26 QPS1042 | |
| | | | | | | | |

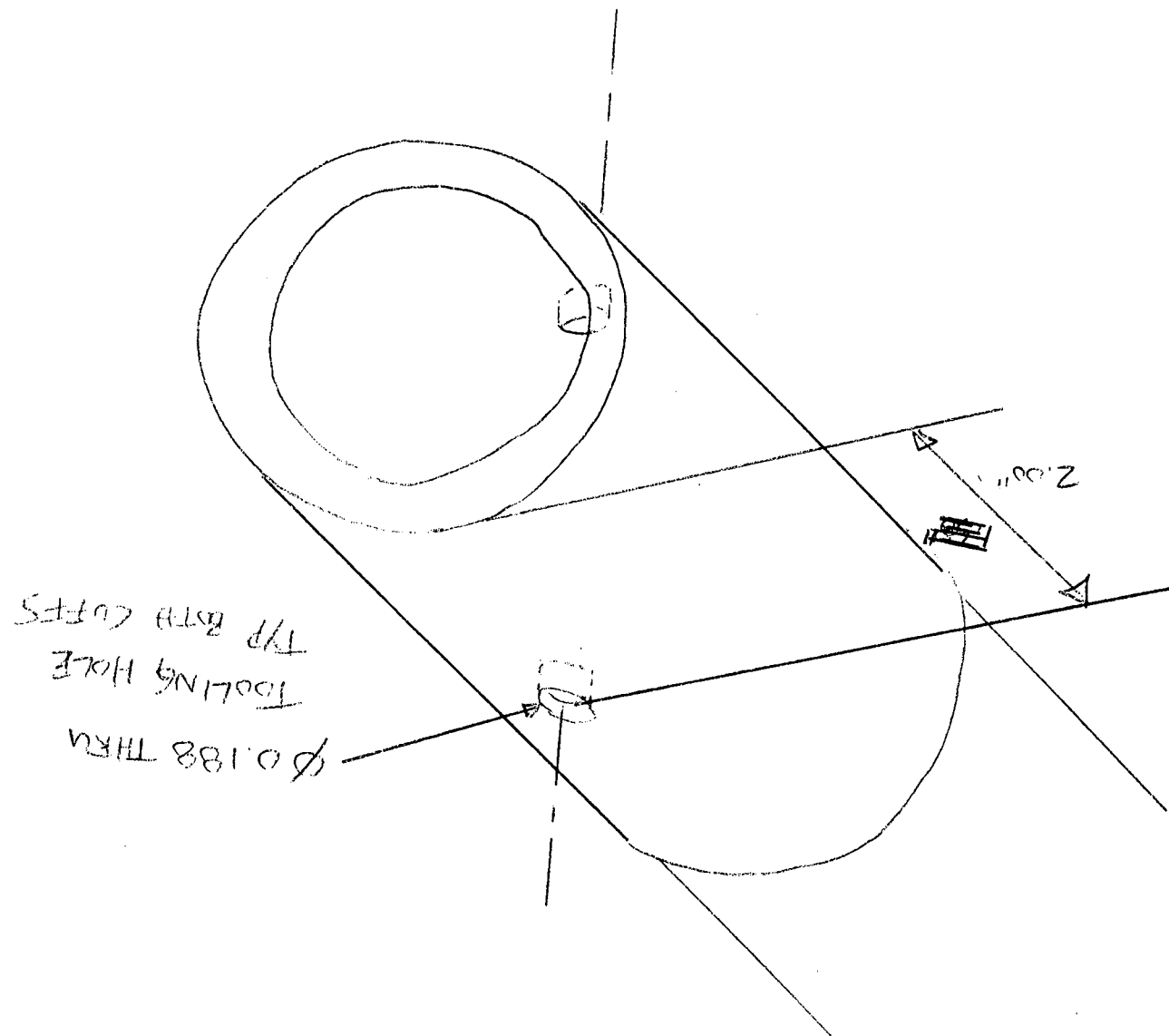
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NOTE: Date & initial all entries

12.03.03
P



METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing Li.

Sales Order Num

711

Sales Order D

Apr 3, 20

Pa

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

| Customer ID | PO Number | Payment Terms |
|-------------|-----------|---------------|
| DARA | PO16600 | Net 30 Days |
| | Ship Via | Process |
| | YRC | |

| Quantity | Item | Description | Total Shipped | This Shipme |
|----------|------|--|---------------|-------------|
| 1.00 | ✓ | 1 PC. 74672 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |
| 1.00 | ✓ | 1 PC. 74673 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |
| 1.00 | ✓ | 1 PC. 74676 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |
| 1.00 | ✓ | 1 PC. 74678 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |

COMMENTS

SHIPPED BY SIGNATURE
METLAB

DATE

RECEIVED BY SIGNATURE
DART AEROSPACE

DATE

METLAB

1000 E. MERMAID LANE

WYNDMOOR, PA 19038

Voice: 215-233-2600

Fax: 215-233-5653

Sold To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

| Customer ID | PO Number | Payment Terms |
|-------------|-----------|---------------|
| DARA | PO16600 | Net 30 Days |
| | Ship Via | Process |
| | YRC | |

| Quantity | Item | Description | Total Shipped | This Shipm |
|----------|------|--|---------------|------------|
| 1.00 | ✓ | D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 74712 | | |
| 1.00 | ✓ | D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 74718 | | |
| 1.00 | ✓ | D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79010 | | |
| | | D-350-748-141TRN CROSSTUBE | | |

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

5/1/12
DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB

1000 E. MERMAID LANE

WYNDMOOR, PA 19038

Voice: 215-233-2600

Fax: 215-233-5653

Sold To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

| Customer ID | PO Number | Payment Terms |
|-------------|-----------|---------------|
| DARA | PO16600 | Net 30 Days |
| | Ship Via | Process |
| | YRC | |

| Quantity | Item | Description | Total Shipped | This Shipm |
|----------|------|--|---------------|------------|
| 1.00 | ✓ | HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79011 D-350-748-141TRN CROSSTUBE | | |
| 1.00 | ✓ | HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79013 D-350-748-141TRN CROSSTUBE | | |
| 1.00 | ✓ | HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 73372 D-350-748-141TRN CROSSTUBE | | |
| | | HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

5/1/12
DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing L.

Sales Order Num

71

Sales Order I

Apr 3, 2

F

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

| Customer ID | PO Number | Payment Terms |
|-------------|-----------|---------------|
| DARA | PO16600 | Net 30 Days |
| | Ship Via | Process |
| | YRC | |

| Quantity | Item | Description | Total Shipped | This Shipm |
|----------|------|---|---------------|------------|
| 1.00 | ✓ | 1 PC. 73375 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)\ | | |
| 1.00 | ✓ | 1 PC. 79391 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |
| 1.00 | ✓ | 1 PC. 79392 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) | | |
| 1.00 | ✓ | 1 PC. 79393 | | |

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing L.

Sales Order Num

71

Sales Order I

Apr 3, 2

F

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

| Customer ID | PO Number | Payment Terms |
|-------------|-----------|---------------|
| DARA | PO16600 | Net 30 Days |
| Ship Via | Process | |
| YRC | | |

| Quantity | Item | Description | Total Shipped | This Shipm |
|----------|------|--|---------------|------------|
| | | D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 560 POUNDS TOTAL | | |

COMMENTS

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METLAB

5/1/12
DATE

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DART AEROSPACE

DATE



1000 E. Mermaid La., Wyndmoor (Phila.) PA 19038-8093
Tel. (215) 233-2600 Fax (215) 233-5653

Certification

SOLD TO

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7

May 1, 2012

| | |
|------------------------------|--|
| Metlab Shop Order No: | 71785 |
| Purchase Order: | 16600 |
| Description: | Crosstube |
| Part No.: | D350-748-141TRN |
| Quantity: | 14 Pieces |
| Weight: | 560 Pounds |
| Material: | 4130 Alloy Steel |
| Specifications: | Heat Treat to Minimum 180 KSI (MIL-T-6736OR AMS 2759-IC) |

This is to certify that the above parts were processed as indicated above and conform to the specification requirements.

Results:

HRC 40 (182 KSI Tensile Strength)

METLAB
Quality Representative Mark Podob

MERCURY CONTAMINATION: During the heat treating process, testing and inspections, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing device.



Heat Treating and Metallurgical Consulting

D350 X-TUBE CUFF MEASUREMENTS

| TYPE | BATCH # | SIDE A | SIDE B |
|------|---------|----------------|---------------|
| | | TWO READINGS | TWO READINGS |
| AFT | B79393 | 2.221"/2.251" | 2.227"/2.252" |
| AFT | B79391 | 2.251"/2.241" | 2.236"/2.252" |
| AFT | B79392 | 2.238"/2.248" | 2.220"/2.262" |
| AFT | B73372 | 2.243"/2.247" | 2.223"/2.263" |
| AFT | B73375 | 2.245"/2.250" | 2.236"/2.266" |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| FWD | B79010 | 2.230"/2.252" | 2.235"/2.245" |
| FWD | B79011 | 2.200"/2.280" | 2.248"/2.249" |
| FWD | B74718 | 2.208"/2.289" | 2.242"/2.252" |
| FWD | B74673 | 2.189"/2.298" | 2.247"/2.238" |
| FWD | B74678 | 2.240"/2.258" | 2.262"/2.236" |
| FWD | B74672 | 2.253"/2.266" | 2.260"/2.253" |
| FWD | B74712 | 2.264"/2.251" | 2.255"/2.258" |
| FWD | B74676 | 2.229"/2.263" | 2.239"/2.254" |
| FWD | B79013 | 2.249"/2.2236" | 2.243"/2.245" |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes: tubes are NOT sandblasted and are still a little crocked

REFERENCE ONLY

8/7/15/16/17